

CalNex Forecast Notes - Monday, May 3, 2010

California Synoptic Overview - Jason Branz (jbranz@arb.ca.gov)

Monday May 3

- Ridge is pushed south by a trough in the PacNW
- Transport flow turns more westerly by afternoon
- Good onshore flow through the Delta into Sac/SJ valleys
- Onshore flow increases south of Pt Conception

Tuesday May 4

- Trough over PacNW pushes ridge farther south
- W/NW transport flow
- Onshore flow at the surface for both north and south
- Marine layer/coastal stratus south of Pt Conception

Wednesday May 5

- PacNW trough drops SE
- Increase in NW flow

Thursday - Friday

- Weakening transport, increasing concentrations
- Higher concentrations Friday

Comments on Local Features and Potential Targets

Tuesday - anticipated local features

AQ may be in the Unhealthy for Sensitive Groups (USG) range in southern SJV (Kern County).

Transport from Southern SJV to SE Desert

Unexpected convergence indicated near Arvin (South SJV) in afternoon by CANSAC model (slide 18); Bakersfield super site not up until mid-May.

Anticipated activity for P3

Tues May 4: Fly day; 10 AM takeoff; 7.5 hours tour of LA Basin with potential cloud work offshore.

Wed: No-fly day

Thu: Fly

Fri: No-Fly

Sat: Fly

Large Scale Transport Notes - Brad Pierce

Forecast Details

San Francisco Bay Area - Danny Kam (dkam@airquality.org)

Note:

smaller red font in parenthesis e.g., (10kt) indicates prediction from previous forecast which differs from the forecast today

Monday

- Light NW wind becoming E, offshore flow from SJV; NW wind enhances by late morning; becoming 25kt at night
- Most NW wind directed toward the foothills, little toward SV
- MBL around 500ft

Tuesday

- 20 kt NW wind becoming 5kt N briefly in the morning; turns NW in early afternoon and strengthen to 25kt by late afternoon and 30kt by the end of the day
- NW wind yields in the morning to allow N wind from SV to penetrate Bay Area via the delta
- MBL rises from 500ft temporarily to 1,500 ft due to inland urban parcel penetration in the morning; otherwise at 500 ft

Wednesday

- NW 25kt wind develop along the coast; varies between 15 to 20kt for the second half of the day; mostly at 15 kt at late night
- Weak N wind penetration from SV in the morning;
- MBL around 750ft, rises to 2,000ft in late morning, then drops quickly to below 500 ft

Thursday

- N wind turns NW, strengthen

Friday & Saturday

- Light NW on Friday morning, strong NW wind afterward

Sacramento Valley - Danny Kam (dkam@airquality.org)

Note:

smaller red font in parenthesis e.g., (subsiding N wind limit downslope flow to eastern SV) indicates prediction from previous forecast which differs from the forecast today

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San Joaquin Valley - Shawn Ferreria [shawn.ferreria@valleyair.org]

Wind Flow:

MONDAY MAY 3

Lower air profilers this morning in Chowchilla and Visalia show a predominant southeasterly wind flow throughout the atmospheric profile. Light and variable wind flow exists at the Lost Hills profiler. This morning thermally driven wind southeasterly surface wind flow exists in the San Joaquin Valley. CANSAC 0Z Model is showing flow through Pacheco and Cottonwold passes by this afternoon. Overnight, winds will be light and variable from Madera County southward in the Valley. Typical up / down slope flow in the Sierra's. Flow will continue through Pacheco pass and the Delta (onshore flow) overnight (albeit light)

Tuesday May 4:

Predominant north to northwest flow through most of the SJV north of Madera and the West-side tomorrow morning (18 Z). Flow from SAC valley into northern SJV. Lighter winds present in Tulare and Kern Counties. Outflow to SLO and Deserts. By 0Z tomorrow afternoon, area of convergence near Arvin worth investigating, with outflow continuing into the Deserts and SLO.

Wednesday and Thursday May 5 and 6 into Friday May 7:

Strong north to northwest wind developing across entire San Joaquin Valley on Wednesday. Area of Convergence continues near Arvin. Offshore flow will develop by Thursday and continue into Friday under lighter wind flows.

San Joaquin Valley Boundary Layer Mixing (CANSAC 00Z run):

Monday May 3:

Strong inversion of 11 degrees Fahrenheit from the surface up to 500 feet in Fresno. Strong inversion also present in Bakersfield of 16 degrees Fahrenheit from the surface up to 500 feet. Maximum mixing depths of 3,500 feet in the north valley and 5,500 to 6,000 feet in the south valley.

TUESDAY MAY 4 and Wednesday May 5 Mixing depths will lower tomorrow to 2,500 to 4,000 feet, with low mixing depths during the morning hours.

Thursday May 6 Mixing depths should remain steady into Thursday.

San Joaquin Valley

Model Forecasts (NAM 12Z and GFS 00Z runs) and Air Quality:

Monday May 3: Eight-hour ozone NAAQS exceedance possible in Modesto today. Ozone is forecast to build across the rest of the District today under poor dispersion conditions.

Tuesday May 4: Potential for eight-hour ozone NAAQS exceedances tomorrow in Stanislaus and Kern Counties.

Wednesday May 5: Lingering air quality conditions will persist in the southern part of the SJV, with improving conditions elsewhere. Ozone is predicted to remain below the eight hour ozone NAAQS.

Thursday and Friday May 6 and 7:

Air quality will begin to deteriorate under slightly stronger high pressure.

Central Coast - NO FORECAST TODAY (for met features see COAMPS slides in Southern Coastal Waters section)

SoCal Coastal Waters - Lee Eddington (Lee.Eddington@navy.mil)

See detailed slides and speaker notes in power point file

+ Monday afternoon (00Z 04 May)

- Marine Low Clouds

- * SCT/BKN StCu Crescent City to Cape Mendocino
- * SCT/BKN St just offshore of Cape Mendocino to Point Reyes
- * CLR Point Reyes to San Diego with patchy fog offshore

- SOCAL Marine Layer Winds

- * WNW 5-10 kts inner waters
- * W 0-5 kts outer waters

+ Tuesday morning (12Z 04 May)

- Marine Low Clouds

- * CLR Crescent City to San Simeon
- * OVC St San Simeon to Point Arguello
- * CLR Point Arguello to Palos Verdes
- * CLR/SCT St Palos Verdes to San Diego with patchy fog offshore

- SOCAL Marine Layer Winds

- * LT VAR 0-5 kts inner waters
- * WNW 10-20 kts outer waters

+ Tuesday afternoon (00Z 05 May)

- Marine Low Clouds

- * CLR Crescent City to Point Arguello
- * SCT/BKN St/Fog Point Arguello to San Diego

- SOCAL Marine Layer Winds

- * W 8-12 kts inner waters
- * WNW 10-25 kts outer waters

+ Wednesday morning (12Z 05 May)

- Marine Low Clouds

- * CLR Crescent City to Palos Verdes
- * OVC St/Fog Palos Verdes to San Diego

- SOCAL Marine Layer Winds

- * ESE 8-12 kts inner waters San Diego to Ventura
- * WNW 10-25 kts outer waters

+ Wednesday afternoon (00Z 06 May)

- Marine Low Clouds

- * CLR Crescent City to Palos Verdes
- * OVC/BKN St/Fog Palos Verdes to San Diego

- SOCAL Marine Layer Winds

- * W 5-10 kts inner waters
- * WNW 10-25 kts outer waters

+ Thursday morning (12Z 06 May)

- Marine Low Clouds

- * CLR Crescent City to Point Mugu
- * OVC St/Fog Point Mugu to San Diego

- SOCAL Marine Layer Winds

- * ESE 0-5 kts inner waters
- * WNW 5-15 kts outer waters

+ Thursday afternoon (00Z 07 May)

- Marine Low Clouds

- * CLR Crescent City to Palos Verdes
- * OVC/BKN St/Fog Palos Verdes to San Diego

South Coast - Kevin Durkee (kdurkee@aqmd.gov)

- Monday: offshore trend for weak onshore gradients this AM; weak easterly AM winds throughout Basin; ridging aloft; warming to above normal & subsidence; shallow marine layer (~400 m); AM haze inland; Monday likely warmest day of next few; afternoon sea breeze; Moderate ozone levels
- Tuesday: ridge breaks down Monday night for deeper marine layer with stronger inversion; stronger onshore gradients for good sea breeze in afternoon; cooler temperatures at coast, only a little cooler inland; sunny after morning low clouds; moderate ozone & PM2.5, likely some ozone into high desert
- Wednesday: weak trough; stronger onshore push; deeper marine layer; some gusty winds in mountains and deserts (below WAD); some moderate AQ inland, but mostly good
- Thursday & Friday: Upper level trough lingers; a little warmer inland as trough & onshore flow weaken slightly - maybe even weak ridging aloft; marine layer into valleys - coastal eddy likely; temps to mid-80s inland valleys on Friday; slight inland ozone bump - mostly moderate;
- Weekend: weak trough - a robust marine layer and cooling; little change in ozone into the weekend (good to moderate) with peaks central San Bernardino Mountains